ICT7: GSFC DAAC - TSDIS Interface Confidence Test

Background:

The Earth Observing System Data and Information System (EOSDIS) Core System (ECS), via the GSFC DAAC has the responsibility for interfacing with the TSDIS Ground System for distributing TRMM science data products for reprocessing and to distribute ancillary data to TSDIS for processing and reprocessing. The GSFC DAAC also distribute TRMM products to TSDIS Science Users (TSUs) for data trending and analysis. The ECS provides a user interface and information about EOSDIS data holdings to TSUs. The purpose of these interfaces is for ECS to archive TRMM science data products, distribute TRMM products to TSDIS for reprocessing, distribute ancillary data to TSDIS for processing and reprocessing, and distribute TRMM products to TSDIS users.

Test Objectives:

♦ To verify that the various ECS and TSDIS messages as described in the ECS-TSDIS ICD can be validated.
♦ To verify proper implementation of interface error handling and exception processing.
♦ To verify proper transfer of data files to TSUs via the ftp interface.
♦ To verify file header and data structure of the four types of file sent between TSDIS and GSFC DAAC.

From	To	Message	Communications Link
GSFC DAAC	TSDIS	Data Request/Retrieve	EBnet
TSDIS	GSFC DAAC	Data Request/Retrieve	EBnet
TSDIS	GSFC DAAC	Data Request	EBnet
GSFC DAAC	TSU	Data Availability & Retrieve	e-mail ftp
TSDIS	GSFC DAAC	Status Request of Product Orders	EBnet
TSDIS	GSFC DAAC	Product Order Cancellation	EBnet
TSDIS	GSFC DAAC	Metadata Update	EBnet

Table ICT7-1 Message Flows

Requirements To Be Verified
TRMM4110#A, TRMM4130#A

Test Configuration:

Hardware and software configurations at each ECS site are managed and tracked by the M&O organization at that site. The most current configuration status report will be obtained prior to the start of testing and be referenced in the test report. See Exhibit ICT7 which is an overall TSDIS to ECS interface diagram. This test covers the portion of the interface shown as TSDIS/TSU/GSFC DAAC portion of the diagram.
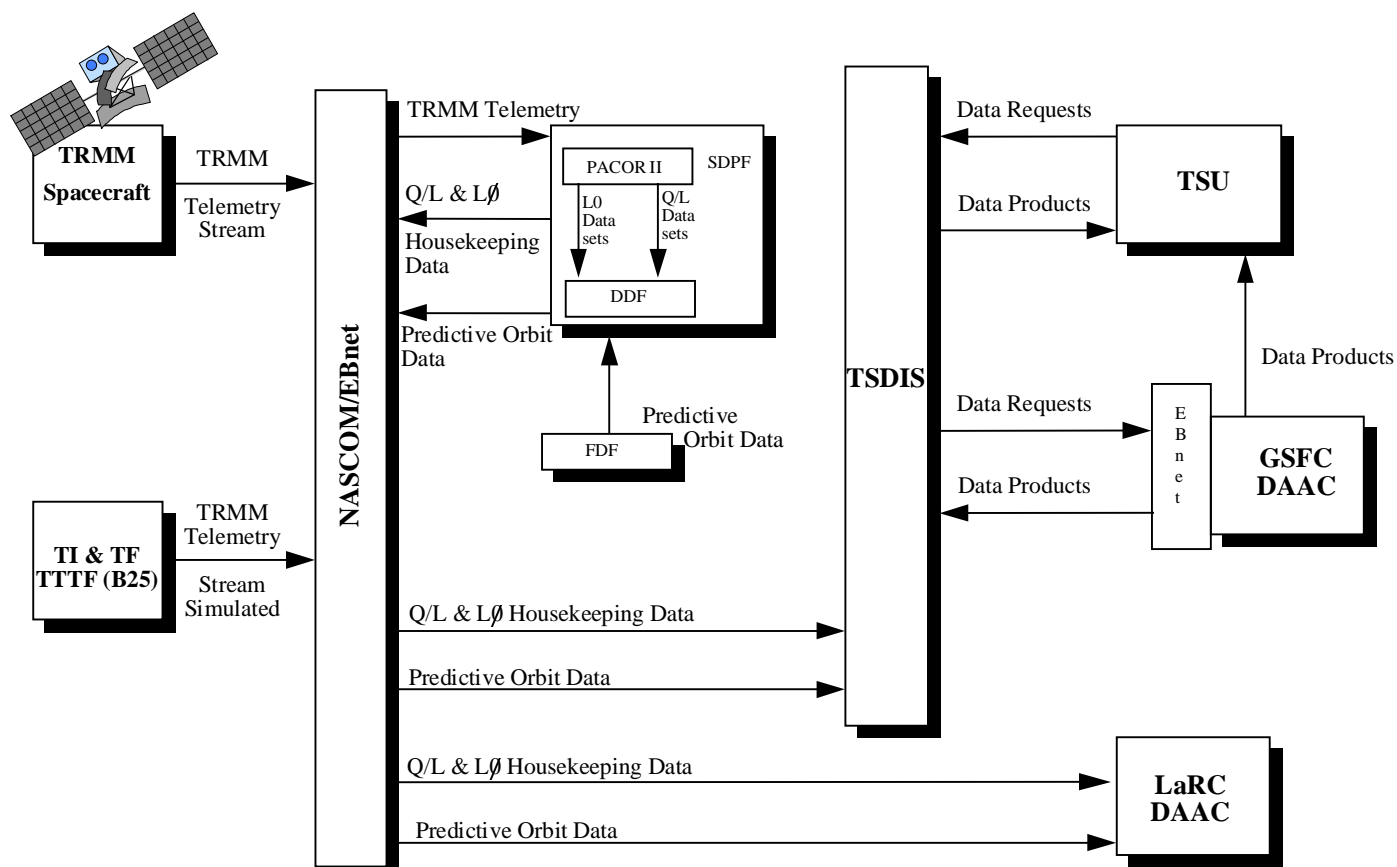
EXHIBIT ICT7 - TRMM/ECS INTERFACES

Participants and Support Requirements:

Participants:

    M&O Support at the GSFC DAAC.

    TSDIS I&T Test Conductor.

    I&T Test Conductor.

    Participating TSU Site.

Communications:

    Data and Messages -- GSFC DAAC connects to EBnet for transfer to TSDIS.

    Ftp Link(s) -- TBS

    Voice -- TSDIS - GSFC DAAC (Circuit TBD)

    E-mail Availability

Equipment and Software:

Hardware: SUN Workstation, Gateway server, Ingest server, Data server, Kerberos Security server.

Software: CsGwMessage.cxx, CsGwSdpfMsg.cxx, CsGwGateway.cxx, CsGwIncomingGatewayMain.cxx, CsGwDelivveryGatewayMain.cxx, CsGwIntGatewaymain.cxx, CsGwDlvGatewaymain.cxx, CsGwSdpfMain.cxx

Data: configuration file, keyktab file, data files via kftp.

Tools: Network monitoring tool: Sniffer, Kerberos 5 beta 5, OODCE 1.0.3, Rogue Wave Tools.h++, net.h++6.04

TSDIS   **ECS/GSFC DAAC**

Levels 1A to 3 Data	**EA1**		
Updated Metadata	**EA2**		**TSU**
TM1, PR, GV, VIRS, Combined Algorithms	**EA3**		
Reproc. Prod. Sched. & Delayed Prod. Status	**EA4**	**FTP Port**	**TSU1**
Data Request Messages	**ME**		
MT **Data Request Acknowledgments**			

TA1   **Levels 1A to 3 for Reprocessing**

TA2   **Ancillary Data for Processing & Reprocessing**

TA3   **TRMM Orbit Ephemeris**

TA4   **TRMM L0 Housekeeping Data**

Exhibit ICT7-2 Data and Message Flow Diagram

Product Delivery

1. TSU1 -- FTP port. Users notified by e-mail of data availability.

Test Data Descriptions

Description / Characteristics	Source
Data request and availability acknowledgments and delivery messages --	GSFC DAAC

Description / Characteristics	Source
-- Gateway Control Messages, Start Session Acknowledgment, See Table 4-3 of ICD 209-CD-007-004. -- Gateway Control Messages, Gateway Error Message, See Table 4-5 of ICD 209-CD-007-004. -- DDN Definition, See Tables 4-11 and 4-12 of ICD 209-CD-007-004. -- DRA Definition, See Table 4-16 of ICD 209-CD-007-004. -- DAA Definition, See Table 4-9 and 4-10 of ICD 209-CD-007-004. -- DAN Definition, See Table 4-7 and 4-8 of ICD 209-CD-007-004. -- DDA Definition, See Table 4-13 of ICD 209-CD-007-004. -- DSA Definition, See Table 4-18 of ICD 209-CD-007-004. -- POS Definition, See Table 4-20 of ICD 209-CD-007-004. --POC Definition, See Table 4-22 of ICD 209-CD-007-004. -- MUA Definition, See Table 4-24 of ICD 209-CD-007-004.	
Data requests, availability, and delivery acknowledgment messages -- -- Gateway Control Message, Start Session Message Definition, See Table 4-2 of ICD 209-CD-007-004. -- Gateway Control Message, Close Session Message, See Table 4-4 of ICD 209-CD-007-004. -- DAN Definition, See Table 4-7 and 4-8 of ICD 209-CD-007-004. -- DAA Definition, See Table 4-9 and 4-10 of ICD 209-CD-007-004. -- DDN Definition, See Tables 4-11 and 4-12 of ICD 209-CD-007-004. -- DRA Definition, See Table 4-16 of ICD 209-CD-007-004. -- DDA Definition, See Table 4-13 of ICD 209-CD-007-004. -- Data Request Definition, See Tables 4-14 and 4-15 of ICD 209-CD-007-004.	TSDIS

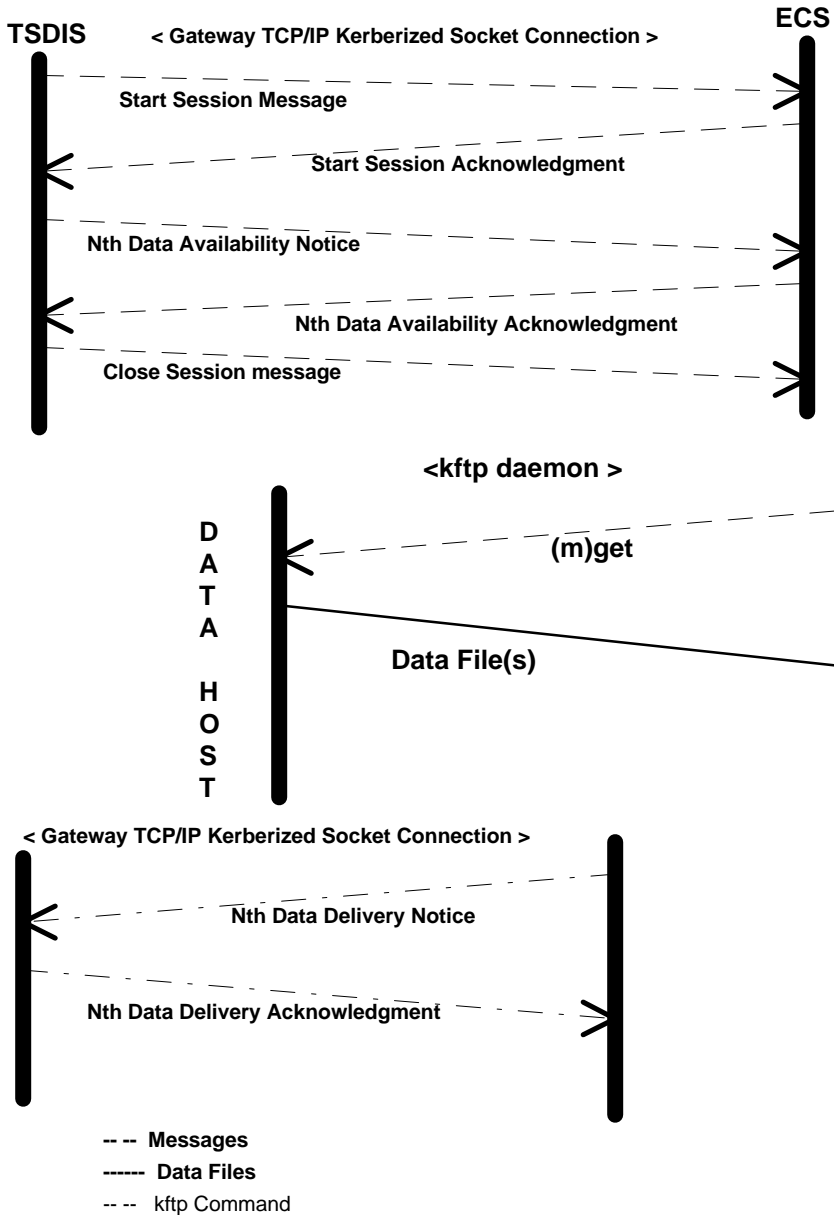| Description / Characteristics	Source
-- DSR Definition, See Table 4-17 of ICD 209-CD-007-004. -- POSR Definition, See Table 4-19 of ICD 209-CD-007-004. -- POCR Definition, See Table 4-21 of ICD 209-CD-007-004. -- MUR Definition, See Table 4-23 of ICD 209-CD-007-004.	
Ancillary data for processing and reprocessing. Header and file structure defined by Tables 5-1, 5-2 of ICD 209-CD-007-004.	GSFC DAAC
Data File, Levels 1A to 3 TMI, PR, GV, VIRS, and combined data products for reprocessing. Header and file structure defined by Tables 5-1 and 5-2 of ICD 209-CD-007-004.	GSFC DAAC,
Data File, TRMM Orbit Ephemeris. Header and file structure defined by Tables 5-1, 5-2 of ICD 209-CD-007-004.	GSFC DAAC
Data File, TRMM L0 Housekeeping data. Header and file structure defined by Tables 5-1, 5-2 of ICD 209-CD-007-004.	GSFC DAAC
Data File, Levels 1A to 3 TMI, PR, GV, VIRS, and combined data products, browse products, and Metadata. Header and file structure defined by Tables 5-1, 5-2 of ICD 209-CD-007-004.	TSDIS
Data File, Updated Metadata. Header and file structure defined by Tables 5-1, 5-2 of ICD 209-CD-007-004.	TSDIS
Data File, TMI, PR, GV, VIRS, combined algorithms and documentation. Header and file structure defined by Tables 5-1, 5-2 of ICD 209-CD-007-004.	TSDIS
Data File, Reprocessing product schedules and delayed product status. Header and file structure defined by Tables 5-1, 5-2 of ICD 209-CD-007-004.	TSDIS

Exhibit ICT7- 3 Test Data

TSDIS **< Gateway TCP/IP Kerberized Socket Connection >** **ECS**

Start Session Message

Start Session Acknowledgment

Nth Data Availability Notice

Nth Data Availability Acknowledgment

Close Session message

<kftp daemon >

D A T A H O S T

(m)get

Data File(s)

< Gateway TCP/IP Kerberized Socket Connection >

Nth Data Delivery Notice

Nth Data Delivery Acknowledgment

-- -- **Messages**

------ **Data Files**

-- -- kftp Command

Exhibit ICT7-4 ECS Retrieves Data from TSDIS

TSDIS   **ECS**

< Gateway TCP/IP Kerberized Socket Connection >

Start Session Message

Start Session Acknowledgment

Nth Data Request or Nth Data Subscription

Nth Data Request or Data Subscription Acknowledgment

Close Session message

< Gateway TCP/IP Kerberized Socket Connection >

Nth Data Availability Notice

Nth Data Availability Acknowledgment

< kftp daemon >

(m)get   **Data**

Host

Data File(s)

< Gateway TCP/IP Kerberized Socket Connection >

Start Session message

Start Session Acknowledgment

Nth Data Delivery Notice

Nth Data Delivery Acknowledgment

Close Session message

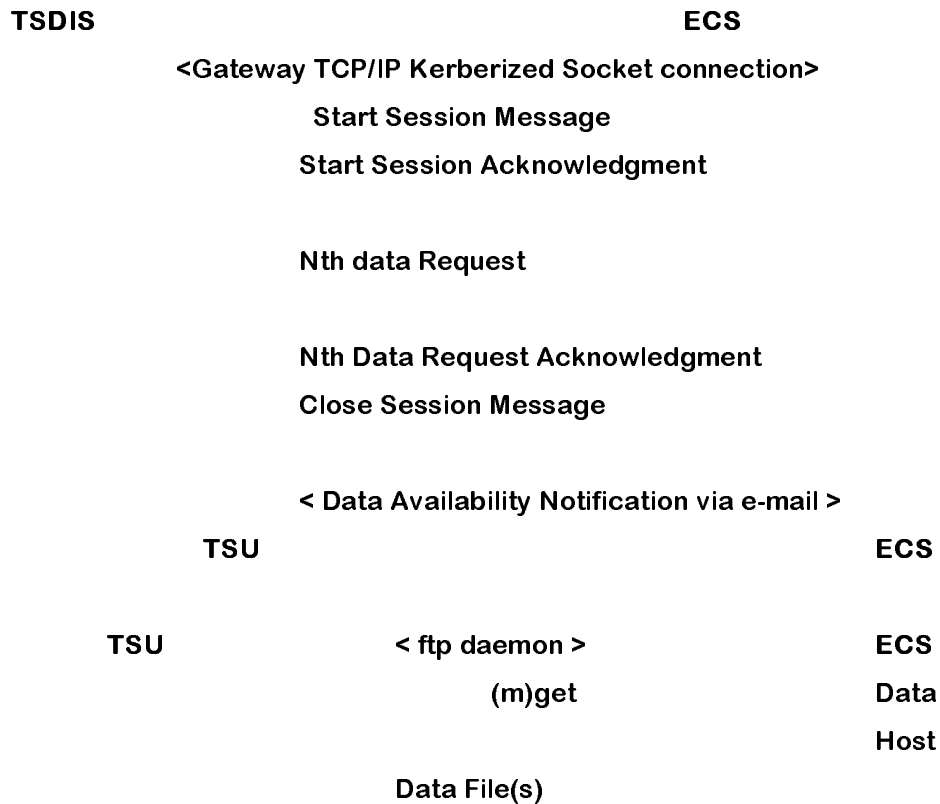**Exhibit ICT7-5. TSDIS Requests/Retrieves Data from GSFC DAAC**

TSDIS   ECS

                                                     <Gateway TCP/IP Kerberized Socket connection>

Start Session Message

Start Session Acknowledgment

Nth data Request

Nth Data Request Acknowledgment

Close Session Message

< Data Availability Notification via e-mail >

TSU   ECS

TSU   < ftp daemon >   ECS

(m)get   Data

Host

Data File(s)

Exhibit ICT7-6 TSDIS Requests Data for TSUs

TSDIS   < Gateway TCP/IP Kerberized Socket Connection> ECS

Start Session message

Start Session Acknowledgment

Nth Product Order Status Request

Nth Product Order Status

Close Session message
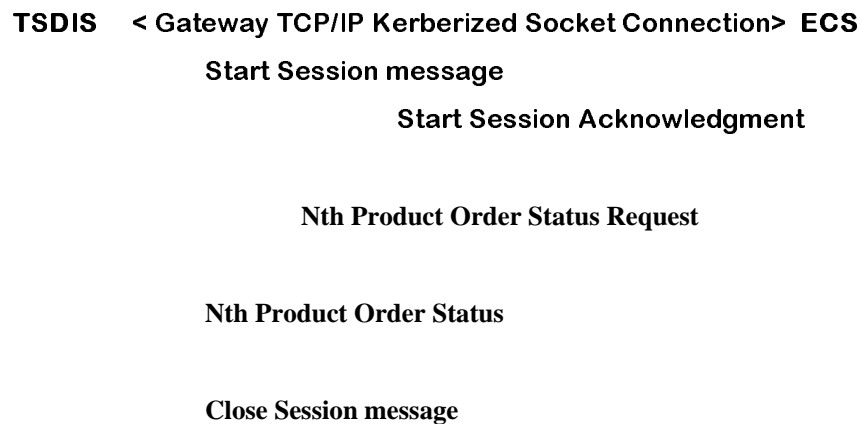
Exhibit ICT7-7 TSDIS Requests Status of Product Orders

TSDIS <Gateway TCP/IP Kerberized Socket Connection> **ECS**

Start Session message

Start Session Acknowledgment

Nth Product Order Cancellation Request
Nth Product Order Cancellation

Close Session message

Exhibit ICT7-8 TSDIS Requests Product Order Cancellation

TSDIS **ECS**

<Gateway TCP/IP Kerberized Socket Connection>

Start Session Message

Start Session Acknowledgment

Nth Metadata Update Request

Nth Metadata Update Acknowledgment

Close Session message

Exhibit ICT7-9 TSDIS Requests Metadata Update

Test Case Identification ICT07.001

Test Case Description

GSFC DAAC Retrieves Data from TSDIS

The TSDIS will transmit a Start Session message to GSFC DAAC and GSFC DAAC will respond with a Start Session Acknowledgment. TSDIS will send a DAN to the GSFC DAAC who will respond with a DAA and TSDIS will transmit a Close Session message. Data will be transferred, with GSFC DAAC responding at the end of the transfer with a DDN and TSDIS responding with a DDA message. See Exhibit ICT7-4 for message and data flow diagrams.

Test Case Conditions

Users are able to change configuration files. Software and hardware as detailed in the forward section of this plan is available and operational.

Test Case Inputs

Users must change the configuration file to reflect the incoming and delivery gateway executables. A configurable port is set for TSDIS gateway. DAN, DAA, DDA, and DDN message formats.

Test Case Results

Data files are transferred to ECS via kftp. The data server places the data files in specified locatins. The incoming gatewayk validates with a DAA if no errors found, and the delivery gateway sends a DDA for successfully completed data transfers files. Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD.

Test Case Criteria

This test will be successful if the external client can connect to a configurab le port and verify DAN ->DAA incoming and DDN ->DDA delivery gateways. Also, security considerations must be met.

Test Case Assumptions

It is assumed that qualified operators for both the TSDIS and GSFC DAAC are provided. It is not expected that IV&V test witness personnel will have password authorization for operating the work stations.

Test Case Requirements

TRMM4110#A, TRMM4130#A

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.001	1.001	TSDIS	Verify TSDIS is operational in the appropriate Mode and Configuration -- i.e. capable of supporting Electronic Distribution.	Successful "Ping" of system		TRMM4110#A,
V1-ICT-07.001	1.002	GSFC DAAC	Start the network monitoring tool to monitor communication across the line.			
V1-ICT-07.001	1.003	GSFC DAAC	As a client, login to a DCE Cell, dce_login<principal name>; password	Setting up GSFC DAAC to respond to TSDIS.		
V1-ICT-07.001	1.004	GSFC DAAC	From the monitoring tool, attempt to read information that the server is reading from the client such as: a. client's id; b. client's permissions; c. client's group; d. client's memory capability			
V1-ICT-07.001	1.005	GSFC DAAC	Set the port connection through FDDI switch.			
V1-ICT-07.001	1.006	GSFC DAAC	Start client session via kftp: cd/krb5/bin/kftpdir kinit <principal name>; password, klist, kftp <host>; username and password			
V1-ICT-07.001	2.001	TSDIS	Send a "Start Session" message			TRMM4110#A
V1-ICT-07.001	2.002	GSFC DAAC	Receive a "Start Session" message and respond with a "Start Session Acknowledgment" message	View monitoring tool to observe receipt of Start Session message and the sending of the Start Session Acknowledgment message.		TRMM4130#A
V1-ICT-07.001	2.003	TSDIS	Receive the "Start Session Acknowledgment" message and respond by sending a DAN			
V1-ICT-07.001	2.004	GSFC DAAC	Receive the DAN and respond with by sending a DAA	View monitoring tool to observe receipt of the DAN and the sending of the DAA and the messages are in the correct format and contain no errors.		TRMM4130#A
V1-ICT-07.001	2.005	TSDIS	Receive DAA message.			

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Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.001	2.006	TSDIS	Send "Close Session" message.			
V1-ICT-07.001	2.007	TSDIS	Send a "Start Session" message			TRMM4110#A
V1-ICT-07.001	2.008	GSFC DAAC	Receive a "Start Session" message and respond with a "Start Session Acknowledgment" message	View monitoring tool to observe receipt of Start Session message and the sending of the Start Session Acknowledgment message.		TRMM4130#A
V1-ICT-07.001	2.009	TSDIS	Receive the "Start Session Acknowledgment" message and respond by sending a DAN with a "Invalid DAN Sequence #"		Error Checking	
V1-ICT-07.001	2.010	GSFC DAAC	Receive the DAN and respond with by sending a DAA indicating an error. The error indicated should be "Invalid DAN Sequence #"	View monitoring tool to observe receipt of the DAN and the sending of the DAA with the appropriate error indicated. Error value indication is a 1.	Error Checking	TRMM4130#A
V1-ICT-07.001	2.011	TSDIS	Receive DAA message. Correct DAN Sequence # and resend.	DAA received by TSDIS should indicate "Invalid DAN Sequence #". Short DAA.	Error Checking	
V1-ICT-07.001	2.012	GSFC DAAC	Receive the corrected DAN and Responds with sending a DAA if DAN is now correct.		Error Checking	
V1-ICT-07.001	2.013	TSDIS	Send "Close Session" message.			
V1-ICT-07.001	2.014	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN containing a invalid file count.	Bit 5 in the disposition field should indicate a value of 5. Short DAA.	Error Checking	
V1-ICT-07.001	2.015	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN having invalid DAN length..	Bit 10 in the disposition field should indicate a value of 10. Short DAA.	Error Checking	
V1-ICT-07.001	2.016	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN containing a invalid aggregate length.	Bit 11 in the disposition field should indicate a value of 11. Short DAA.	Error Checking	
V1-ICT-07.001	2.017	TSDIS GSFC	Repeat 2.007 through 2.013 Except send a DAN containing	Bit 12 in the disposition field	Error Checking	

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
		DAAC	database failures.	should indicate a value of 12. Short DAA.		
V1-ICT-07.001	2.018	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN containing a duplicate DAN sequence number.	Bit 13 in the disposition field should indicate a value of 13. Short DAA.	Error Checking	
V1-ICT-07.001	2.019	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN containing invalid data version.	Bit 0 in the disposition field should indicate a value of 0. Long DAA.	Error Checking	
V1-ICT-07.001	2.020	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN containing invalid data type.	Bit 1 in the disposition field should indicate a value of 1.	Error Checking	
V1-ICT-07.001	2.021	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN containing a invalid directory.	Bit 4 in the disposition field should indicate a value of 4. Long DAA.	Error Checking	
V1-ICT-07.001	2.022	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN containing a invalid file size field.	Bit 8 in the disposition field should indicate a value of 8. Long DAA.	Error Checking	
V1-ICT-07.001	2.023	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN containing a invalid time/date format.	Bit 10 in the disposition field should indicate a value of 10. Long DAA.	Error Checking	
V1-ICT-07.001	2.024	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN invalid file ID.	Bit 11 in the disposition field should indicate a value of 11. Long DAA.	Error Checking	
V1-ICT-07.001	2.025	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN containing a invalid node name.	Bit 14 in the disposition field should indicate a value of 14. Long DAA.	Error Checking	
V1-ICT-07.001	2.026	TSDIS GSFC DAAC	Repeat 2.007 through 2.013 Except send a DAN a invalid file type.	Bit 15 in the disposition field should indicate a value of 15. Long DAA.	Error Checking	
V1-ICT-07.001	2.027	GSFC DAAC	Establishes a kftp port, sends a "get" message to TSDIS and receives the data file.	A data file is received by GSFC DAAC and that there		TRMM4110#A

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
				are no errors indicated.		
V1-ICT-07.001	2.028	GSFC DAAC	Sends "Start Session" message.			
V1-ICT-07.001	2.029	GSFC DAAC	Sends a DDN			
V1-ICT-07.001	2.030	TSDIS	Receives the DDN and responds with a DDA message.			
V1-ICT-07.001	2.031	GSFC DAAC	Receives DDA message.	View monitoring tool to observe receipt of the DDA message.		
V1-ICT-07.001	2.032	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Network Failure.	Bit 1 in the disposition field should indicate a value of 1. Short DDN.	Error Checking	
V1-ICT-07.001	2.033	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Unable to establish kftp connection.	Bit 2 in the disposition field should indicate a value of 2. Short DDN.	Error Checking	
V1-ICT-07.001	2.034	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Host denied access.	Bit 3 in the disposition field should indicate a value of 3. Short DDN.	Error Checking	
V1-ICT-07.001	2.035	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for All file groups/files not found.	Bit 4 in the disposition field should indicate a value of 4. Short DDN.	Error Checking	
V1-ICT-07.001	2.036	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Kftp failure - Too many errors in file transfer.	Bit 5 in the disposition field should indicate a value of 5. Short DDN.	Error Checking	
V1-ICT-07.001	2.037	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Post-transfer double-check failed.	Bit 6 in the disposition field should indicate a value of 6. Short DDN.	Error Checking	
V1-ICT-07.001	2.038	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Kftp command failure.	Bit 7 in the disposition field should indicate a value of 7. Short DDN.	Error Checking	
V1-ICT-07.001	2.039	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a	Bit 239 in the disposition field should indicate a	Error Checking	

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
			Metadata preprocessing error.	value of 239. Short DDN.		
V1-ICT-07.001	2.040	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Data provider volume threshold exceeded.	Bit 240 in the disposition field should indicate a value of 240. Short DDN.	Error Checking	
V1-ICT-07.001	2.041	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for System volume threshold exceeded.	Bit 241 in the disposition field should indicate a value of 241. Short DDN.	Error Checking	
V1-ICT-07.001	2.042	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Data provider request threshold exceeded.	Bit 242 in the disposition field should indicate a value of 242. Short DDN.	Error Checking	
V1-ICT-07.001	2.043	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for System request threshold exceeded.	Bit 243 in the disposition field should indicate a value of 243. Short DDN.	Error Checking	
V1-ICT-07.001	2.044	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Resource allocation failure.	Bit 244 in the disposition field should indicate a value of 244. Short DDN.	Error Checking	
V1-ICT-07.001	2.045	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Recovery failure.	Bit 245 in the disposition field should indicate a value of 245. Short DDN.	Error Checking	
V1-ICT-07.001	2.046	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Database access error.	Bit 246 in the disposition field should indicate a value of 246. Short DDN.	Error Checking	
V1-ICT-07.001	2.047	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Incorrect number of Metadata files.	Bit 247 in the disposition field should indicate a value of 247. Short DDN.	Error Checking	
V1-ICT-07.001	2.048	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Incorrect number of Science files.	Bit 248 in the disposition field should indicate a value of 248. Short DDN.	Error Checking	
V1-ICT-07.001	2.049	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Incorrect number of files.	Bit 249 in the disposition field should indicate a value of 249.	Error Checking	

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
				Short DDN.		
V1-ICT-07.001	2.050	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a Data conversion failure.	Bit 250 in the disposition field should indicate a value of 250. Short DDN.	Error Checking	
V1-ICT-07.001	2.051	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Metadata checking failure.	Bit 251 in the disposition field should indicate a value of 251. Short DDN.	Error Checking	
V1-ICT-07.001	2.052	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a Unknown data type.	Bit 252 in the disposition field should indicate a value of 252. Short DDN.	Error Checking	
V1-ICT-07.001	2.053	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a Invalid or missing file type.	Bit 253 in the disposition field should indicate a value of 253. Short DDN.	Error Checking	
V1-ICT-07.001	2.054	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a File I/O error.	Bit 254 in the disposition field should indicate a value of 254. Short DDN.	Error Checking	
V1-ICT-07.001	2.055	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a Data archive error.	Bit 255 in the disposition field should indicate a value of 255. Short DDN.	Error Checking	
V1-ICT-07.001	2.056	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Network Failure.	Bit 1 in the disposition field should indicate a value of 1. Long DDN.	Error Checking	
V1-ICT-07.001	2.057	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Unable to establish kftp connection.	Bit 2 in the disposition field should indicate a value of 2. Long DDN.	Error Checking	
V1-ICT-07.001	2.058	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Host denied access.	Bit 3 in the disposition field should indicate a value of 3. Long DDN.	Error Checking	
V1-ICT-07.001	2.059	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for File not found.	Bit 4 in the disposition field should indicate a value of 4. Long DDN.	Error Checking	

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.001	2.060	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Kftp failure - Too many errors in file transfer.	Bit 5 in the disposition field should indicate a value of 5. Long DDN.	Error Checking	
V1-ICT-07.001	2.061	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Post-transfer double-check failed.	Bit 6 in the disposition field should indicate a value of 6. Long DDN.	Error Checking	
V1-ICT-07.001	2.062	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Kftp command failure.	Bit 7 in the disposition field should indicate a value of 7. Long DDN.	Error Checking	
V1-ICT-07.001	2.063	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a Metadata preprocessing error.	Bit 239 in the disposition field should indicate a value of 239. Long DDN.	Error Checking	
V1-ICT-07.001	2.064	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Data provider volume threshold exceeded.	Bit 240 in the disposition field should indicate a value of 240. Long DDN.	Error Checking	
V1-ICT-07.001	2.065	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for System volume threshold exceeded.	Bit 241 in the disposition field should indicate a value of 241. Long DDN.	Error Checking	
V1-ICT-07.001	2.066	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Data provider request threshold exceeded.	Bit 242 in the disposition field should indicate a value of 242. Long DDN.	Error Checking	
V1-ICT-07.001	2.067	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for System request threshold exceeded.	Bit 243 in the disposition field should indicate a value of 243. Long DDN.	Error Checking	
V1-ICT-07.001	2.068	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Resource allocation failure.	Bit 244 in the disposition field should indicate a value of 244. Long DDN.	Error Checking	
V1-ICT-07.001	2.069	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Recovery failure.	Bit 245 in the disposition field should indicate a value of 245. Long DDN.	Error Checking	
V1-ICT-07.001	2.070	GSFC	Repeat steps 2.029 through step	Bit 246 in the	Error	

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
		DAAC TSDIS	2.031 except send a DDN having a error bit set for Database access error.	disposition field should indicate a value of 246. Long DDN.	Checking	
V1-ICT-07.001	2.071	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Incorrect number of Metadata files.	Bit 247 in the disposition field should indicate a value of 247. Long DDN.	Error Checking	
V1-ICT-07.001	2.072	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Incorrect number of Science files.	Bit 248 in the disposition field should indicate a value of 248. Long DDN.	Error Checking	
V1-ICT-07.001	2.073	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Incorrect number of files.	Bit 249 in the disposition field should indicate a value of 249. Long DDN.	Error Checking	
V1-ICT-07.001	2.074	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a Data conversion failure.	Bit 250 in the disposition field should indicate a value of 250. Long DDN.	Error Checking	
V1-ICT-07.001	2.075	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for Metadata checking failure.	Bit 251 in the disposition field should indicate a value of 251. Long DDN.	Error Checking	
V1-ICT-07.001	2.076	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a Unknown data type.	Bit 252 in the disposition field should indicate a value of 252. Long DDN.	Error Checking	
V1-ICT-07.001	2.077	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a Invalid or missing file type.	Bit 253 in the disposition field should indicate a value of 253. Long DDN.	Error Checking	
V1-ICT-07.001	2.078	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a File I/O error.	Bit 254 in the disposition field should indicate a value of 254. Long DDN.	Error Checking	
V1-ICT-07.001	2.079	GSFC DAAC TSDIS	Repeat steps 2.029 through step 2.031 except send a DDN having a error bit set for a Data archive error.	Bit 255 in the disposition field should indicate a value of 255. Long DDN.	Error Checking	
V1-ICT-07.001	3.002	GSFC DAAC	Receives "Close Session" message.			

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.001	3.003	GSFC DAAC	Perform "kdestroy"	End DCE/Kerberos session		

Test Case Identification ICT07.002

Test Case Description

TSDIS Requests/Retrieves Data from GSFC DAAC.
TSDIS opens the TCP/IP connection to the Gateway, and sends the Start Session message. GSFC DAAC returns the Start Session Acknowledgment message. TSDIS sends a DR or DSR with GSFC DAAC responding with a DRA or DSA. GSFC DAAC sends a DAN with TSDIS responding with a DAA. Data is transferred. The session ends with TSDIS sending a End Session message and GSFC DAAC responding with a End Session acknowledgment. TSDIS sends a DDN and GSFC DAAC responds with a DDA and the session is closed. See Exhibit ICT7-5 for message and data flow diagrams.

Test Case Conditions

Users are able to change the configuration files. Software and hardware as detailed in the forward portion of this plan is available and operational.

Test Case Inputs

Users must change the configuration file to reflect the incoming and delivery gateway executables. A configurable port is set for TSDIS gateway.   DR, DSR, DRA, DSA, DAN, DAA, DDN, and DDA message formats.

Test Case Results

Data files are transferred to ECS via kftp. The data server places the data files in specified locatins. The incoming gatewayk validates with a DR DSR, DDN if no errors found, and the delivery gateway sends a DRA, DSA, DDA for successfully completed data transfers files. Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD.

Test Case Criteria

This test will be successful if the external client can connect to a configurable port and verify DR ->DRA, DS ->DSA, DAN ->DAA, DDN ->DDA incoming and delivery gateways.   Messages and files are transmitted

between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD. Verify at the work stations that the messages are received and that acknowledgments are sent and received correctly.

Test Case Assumptions

It is assumed that qualified operators for both the TSDIS and GSFC DAAC are provided.   It is not expected that IV&V test witness personnel will have password authorization for operating the work stations.

Test Case Requirements

TRMM4110#A, TRMM4130#A

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.002	1.001	TSDIS	Verify TSDIS is operational and in the appropriate Mode and Configuration -- i.e., capable of supporting Electronic Distribution.	Successful "Ping" of system		
V1-ICT-07.002	1.002	GSFC DAAC	Start the network monitoring tool to monitor communication across the line.			
V1-ICT-07.002	1.003	GSFC DAAC	As a client, login to a DCE cell, dce_login<principal name>; password.			
V1-ICT-07.002	1.004	GSFC DAAC	From the monitoring tool, attempt to read information that the server is reading from the client such as: a. client's id; b. client's permissions; c. client's group; d. client's memory capability.			
V1-ICT-07.002	1.005	GSFC DAAC	Set the port connection through FDDI switch.			
V1-ICT.07.002	2.001	TSDIS	Send a "Start Session" message.			
V1-ICT-07.002	2.002	GSFC DAAC	Receives the "Start Session" message and responds with a "Start Session Acknowledgment" message	View monitoring tool to observe receipt of Start Session message and the sending of the Start Session Acknowledgment message.		TRMM4110#A
V1-ICT-07.002	2.003	TSDIS	Issues a Data Request (DR) message.			TRMM4110#A,
V1-ICT-07.002	2.004	GSFC DAAC	Receives the DR, authenticates the message, verifies security and sends a DRA to TSDIS.	View monitoring tool to observe receipt of DR message and the sending of the		TRMM4130#A,

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
				DRA message. Verify that the DR message format meets the requirements of Table 4-14 and 4-15 of 209-CD-007-004.		
V1-ICT-07.002	2.005	TSDIS	Sends a "Close Session" message.			
V1-ICT-07.002	2.006	GSFC DAAC	Receives the "Close Session" message.			
V1-ICT-07.002	2.007	GSFC DAAC	Sends a DAN message.	View monitoring tool to observe sending of the DAN message.		
V1-ICT-07.002	2.008	TSDIS	Receives DAN message and responds by sending DAA.			
V1-ICT-07.002	2.009	GSFC DAAC	Receives DAA message.	View monitoring tool to observe sending of the DAA message.		
V1-ICT-07.002	2.010	TSDIS	Opens a kftp daemon circuit with the GSFC DAAC Host. Issues a "get" message and receives the data file.			
V1-ICT-07.002	2.011	GSFC DAAC	Transfers the data file to TSDIS.	View monitoring tool to observe sending of the data file.		
V1-ICT-07.002	2.012	TSDIS	Issues a Start Session message.			
V1-ICT-07.002	2.013	GSFC DAAC	Receives the Start Session message and responds with a Start Session Acknowledgment.	View monitoring tool to observe receipt of Start Session message and the sending of the Start Session Acknowledgment message.		
V1-ICT-07.002	2.014	TSDIS	Sends a DDN to GSFC DAAC.			
V1-ICT-07.002	2.015	GSFC DAAC	Receives the DDN and responds with a DDA.	View monitoring tool to observe receipt of DDN message and the sending of the DDA message.		
V1-ICT-07.002	2.016	GSFC DAAC	Resend a DDA except insert a error showing Error processing DDN.	Error bit should show a value of 2 in the disposition	Error Checking	

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
				portion of the DDA message definition.		
V1-ICT-07.002	2.017	TSDIS	Receives a error message indicating that there was an error in processing the DDN.	GSFC corrects the DDA and resend the message to TSDIS.	Error Checking	
V1-ICT.07.002	2.018	TSDIS	Send a "Start Session" message.			
V1-ICT-07.002	2.019	GSFC DAAC	Receives the "Start Session" message and responds with a "Start Session Acknowledgment" message	View monitoring tool to observe receipt of Start Session message and the sending of the Start Session Acknowledgment message.		TRMM4110#A
V1-ICT-07.002	2.020	TSDIS	Issues a Data Subscription (DS) message.			TRMM4110#A,
V1-ICT-07.002	2.021	GSFC DAAC	Receives the DS, authenticates the message, verifies security and sends a DSA to TSDIS.	View monitoring tool to observe receipt of DS message and the sending of the DSA message. Verify that the DS message format meets the requirements of Table 4-14 and 4-15 of 209-CD-007-004.		TRMM4130#A,
V1-ICT-07.002	2.022	TSDIS	Sends a "Close Session" message.			
V1-ICT-07.002	2.023	GSFC DAAC	Receives the "Close Session" message.			
V1-ICT-07.002	2.024	GSFC DAAC	Sends a DAN message.	View monitoring tool to observe sending of the DAN message.		
V1-ICT-07.002	2.025	TSDIS	Receives DAN message and responds by sending DAA.			
V1-ICT-07.002	2.026	GSFC DAAC	Receives DAA message.	View monitoring tool to observe sending of the DAA message.		
V1-ICT-07.002	2.027	TSDIS	Opens a kftp daemon circuit with the GSFC DAAC Host. Issues a "get" message and receives the data file.			

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.002	2.028	GSFC DAAC	Transfers the data file to TSDIS.	View monitoring tool to observe sending of the data file.		
V1-ICT-07.002	2.029	TSDIS	Issues a Start Session message.			
V1-ICT-07.002	2.030	GSFC DAAC	Receives the Start Session message and responds with a Start Session Acknowledgment.	View monitoring tool to observe receipt of Start Session message and the sending of the Start Session Acknowledgment message.		
V1-ICT-07.002	2.031	TSDIS	Sends a DDN to GSFC DAAC.			
V1-ICT-07.002	2.032	GSFC DAAC	Receives the DDN and responds with a DDA.	View monitoring tool to observe receipt of DDN message and the sending of the DDA message.		
V1-ICT-07.002	3.001	TSDIS	Issues a "Close Session" message.			
V1-ICT-07.002	3.002	GSFC DAAC	Receives "Close Session" message.			
V1-ICT-07.002	3.003	GSFC DAAC	Perform "kdestroy"	End DCE/Kerberos session		

Test Case Identification ICT07.003

Test Case Description

TSDIS Requests Data for TSUs
The sequence of Gateway and handshake control messages and file transfers needed for TSUs to obtain data from GSFC DAAC via TSDIS.   TSDIS establishes a TCP/IP connections and sends the Start Session message. GSFC DAAC returns the Start Session Acknowledgment message. TSDIS sends a DR or DSR with GSFC DAAC responding with a DRA or DSA. GSFC DAAC sends a DAN with TSDIS responding with a DAA. Data is transferred. The session ends with TSDIS sending a End Session message and GSFC DAAC responding with a End Session acknowledgment. TSDIS sends a DDN and GSFC DAAC responds with a DDA and the session is closed. See Exhibit ICT7-6 for message and data flow diagrams.

Test Case Conditions

Users are able to change the configuration files. Software and hardware as detailed in the forward portion of this plan is available and operational.

Test Case Inputs

Users must change the configuration file to reflect the incoming and delivery gateway executables. A configurable port is set for TSDIS gateway. DR DRA, message formats. Also establish a ftp link to TSU.

Test Case Results

The incoming gatewayk validates with a DR , if no errors found, and the delivery gateway sends a DRA, for successfully completed data transfers files. Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD.Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD. Also a connection is established with a TSU and a file is transferred to the TSU.

Test Case Criteria

This test will be successful if the external client can connect to a configurable port and verify DR ->DRA, incoming and delivery gateways. Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD. Verify at the work stations that the messages are received and that acknowledgments are sent and received correctly.

Test Case Assumptions

It is assumed that qualified operators for both the TSDIS and GSFC DAAC are provided. It is not expected that IV&V test witness personnel will have password authorization for operating the work stations.

Test Case Requirements

TRMM4110#A, TRMM4130#A

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.003	1.001	TSDIS	Verify TSDIS is operational in the appropriate Mode and Configuration -- i.e., capable of supporting Electronic Distribution.	Successful "Ping" of system.		
V1-ICT-07.003	1.002	GSFC DAAC	Start the network monitoring tool to monitor communication across the line.			
V1-ICT-07.003	1.003	GSFC DAAC	As a client, login to a DCE Cell, dce_login<principal name>; password			
V1-ICT-07.003	1.004	GSFC DAAC	From the monitoring tool, attempt to read information that the server is reading from the client such as: a. client's id; b. client's permissions; c. client's group; d. client's memory			

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
			capability.			
V1-ICT-07.003	1.005	GSFC DAAC	Set the port connection through FDDI switch.			
V1-ICT-07.003	1.006	GSFC DAAC	Start client session via kftp: cd/krb5/bin/kftpdir kinit<principal name>; password, klist, kftp<host>; username and password.	Go to the application directory to run "kftp" and gather credential tickets for authentication.		
V1-ICT-07.003	1.007	GSFC DAAC	Gather authentication response from external process.			
V1-ICT-07.003	2.001	TSDIS	Send "Start Session" message.			
V1-ICT-07.003	2.002	GSFC DAAC	Receive "Start Session" message and respond with "Start Session Acknowledgment"	View monitoring tool to observe receipt of Start Session message and the sending of the Start Session Acknowledgment messages.		TRMM4110#A,
V1-ICT-07.003	2.003	TSDIS	Send DR message.			
V1-ICT-07.003	2.004	GSFC DAAC	Receive DR and respond with DRA.	View monitoring tool to observe receipt of DR and the sending of the DRA.		TRMM4110#A,
V1-ICT-07.003	2.005	TSDIS	Receive DRA.			
V1-ICT-07.003	2.006	GSFC DAAC	Resend a DRA except change the disposition field to include a Validation failure.	A error message indicating a type 1 error is sent to TSDIS.	Error Checking	
V1-ICT-07.003	2.007	TSDIS	Receive the DRA with a message indicating a type 1 error.		Error Checking	
V1-ICT-07.003	2.008	GSFC DAAC	Correct the DRA and resend to TSDIS.		Error Checking	
V1-ICT-07.003	2.009	TSDIS	Receive the corrected DRA.			
V1-ICT-07.003	2.010	GSFC DAAC	Resend a DRA except change the disposition field to include a Network Error.	A error message indicating a type 2 error is sent to TSDIS.	Error Checking	
V1-ICT-07.003	2.011	TSDIS	Receive the DRA with a message indicating a type 2 error.		Error Checking	
V1-ICT-07.003	2.012	GSFC DAAC	Correct the DRA and resend to TSDIS.		Error Checking	
V1-ICT-07.003	2.013	TSDIS	Receive the corrected DRA.		Error Checking	

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.003	2.014	GSFC DAAC	Send E-mail to user (TSU) notifying of Data Availability via the ftp port.	Send E-mail with return receipt so that test conductor is aware of when the TSU receives and reads the E-mail.		TRMM4130#A,
V1-ICT-07.003	2.015	TSU	Opens a ftp port and issues a "get" request for the data file.			
V1-ICT-07.003	2.016	GSFC DAAC	Data host ftp's the data file to the TSU.			
V1-ICT-07.003	3.001	GSFC DAAC	Perform "kdestroy"	End DCE/Kerberos session		

Test Case Identification ICT07.004

Test Case Description

TSDIS Requests Status of Product Orders
The sequence of Gateway and handshake control messages and file transfers needed for TSUs to obtain data from GSFC DAAC via TSDIS. TSDIS establishes a TCP/IP connections and sends the Start Session message. GSFC DAAC returns the Start Session Acknowledgment message. TSDIS transmits a POSR and GSFC DAAC responds with a POS and TSDIS closes the session. See Exhibit ICT7-7 for message and data flow diagrams.

Test Case Conditions
Users are able to change the configuration files. Software and hardware as detailed in the forward portion of this plan is available and operational.

Test Case Inputs
Users must change the configuration file to reflect the incoming and delivery gateway executables. A configurable port is set for TSDIS gateway.   PSR and POS message formats.

Test Case Results
The incoming gatewayk validates with a POSR , if no errors found, and the delivery gateway sends a POS, for successfully completed data transfers files. Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD.Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD.   .TSDIS correctly receiving the status of Product orders.

Test Case Criteria
This test will be successful if the external client can connect to a configurable port and verify POSR ->POS, incoming and delivery gateways.   Messages and files are transmitted between the GSFC DAAC and TSDIS

and that the messages and file formats agree with the ICD. Verify at the work stations that the messages are received and that acknowledgments are sent and received correctly.

Test Case Assumptions
It is assumed that qualified operators for both the TSDIS and GSFC DAAC are provided.   It is not expected that IV&V test witness personnel will have password authorization for operating the work stations.

Test Case Requirements
TRMM4110#A, TRMM4130#A

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.004	1.001	TSDIS	Verify; TSDIS is operational in the appropriate mode and configuration -- i.e., capable of supporting electronic distribution.	Successful "Ping" of system		
V1-ICT-07.004	1.002	GSFC DAAC	Start the network monitoring tool to monitor communication across the line.			
V1-ICT-07.004	1.003	GSFC DAAC	As a client, login to a DCE Cell, dce_login<principal name>; password..			
V1-ICT-07.004	1.004	GSFC DAAC	From the monitoring tool, attempt to read information that the server is reading from the client such as: a. client's id; b. client's permissions; c. client's group; d. client's memory capability.			
V1-ICT-07.004	2.001	TSDIS	Send "Start Session" message.			
V1-ICT-07.004	2.002	GSFC DAAC	Receive "Start Session" message and respond with "Start Session Acknowledgment".	View monitoring tool to observe receipt of Start Session and the sending of the Start Session Acknowledgment messages.		TRMM4130#A, TRMM4110#A,
V1-ICT-07.004	2.003	TSDIS	Send POSR message.			
V1-ICT-07.004	2.004	GSFC DAAC	Receive POSR message and responds with a POS message.	View monitoring tool to observe receipt of POSR and the sending of the POS messages.		TRMM4130#A,
V1-ICT-07.004	2.005	GSFC DAAC	GSFC resends POS message except with a Validation failure error message.	A error message with a value of 1 is sent to TSDIS	Error Checking	
V1-ICT-07.004	2.006	TSDIS	Receives the error message indicated as a 1 which indicates a Validation Error.	TSDIS validates the receipt of the error with a	Error Checking	

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Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
				value of 1		
V1-ICT-07.004	2.007	GSFC DAAC	GSFC resends a POS that is corrected without the error.		Error Checking	
V1-ICT-07.004	2.008	TSDIS	Receives the correct POS message.		Error Checking	
V1-ICT-07.004	2.009	GSFC DAAC	GSFC resends POS message except with a ECS_ID not found error message.	A error message with a value of 2 is sent to TSDIS	Error Checking	
V1-ICT-07.004	2.010	TSDIS	Receives the error message indicated as a 2 which indicates a ECS_ID not found Error.	TSDIS validates the receipt of the error with a value of 2	Error Checking	
V1-ICT-07.004	2.011	GSFC DAAC	GSFC resends a POS that is corrected without the error.		Error Checking	
V1-ICT-07.004	2.012	TSDIS	Receives the correct POS message.		Error Checking	
V1-ICT-07.004	3.001	TSDIS	Receives POS message and responds with a "Close Session" message.			
V1-ICT-07.004	3.002	GSFC DAAC	Receives "Close Session" message.			
V1-ICT-07.004	3.003	GSFC DAAC	Perform "kdestroy"	End DCE/Kerberos session		

Test Case Identification ICT07.005

Test Case Description
TSDIS Cancels Product Orders

The sequence of Gateway and handshake control messages and file transfers needed for TSUs to obtain data from GSFC DAAC via TSDIS. TSDIS establishes a TCP/IP connections and sends the Start Session message. GSFC DAAC returns the Start Session Acknowledgment message. TSDIS transmits a POCR and GSFC DAAC responds with a POC and TSDIS closes the session. See Exhibit ICT7-8 for message and data flow diagrams.

Test Case Conditions
Users are able to change the configuration files. Software and hardware as detailed in the forward portion of this plan is available and operational.

Test Case Inputs
Users must change the configuration file to reflect the incoming and delivery gateway executables. A configurable port is set for TSDIS gateway. PSR and POS message formats. POCR and POC message formats.

Test Case Results

The incoming gatewayk validates with a POSR , if no errors found, and the delivery gateway sends a POS, for successfully completed data transfers files. Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD.Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD.   .TSDIS correctly receiving the status of Product Cancellation orders.

Test Case Criteria

This test will be successful if the external client can connect to a configurable port and verify POCR ->POC, incoming and delivery gateways.   Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD. Verify at the work stations that the messages are received and that acknowledgments are sent and received correctly.

Test Case Assumptions

It is assumed that qualified operators for both the TSDIS and GSFC DAAC are provided.   It is not expected that IV&V test witness personnel will have password authorization for operating the work stations.

Test Case Requirements
TRMM4110#A, TRMM4130#A

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.005	1.001	TSDIS	Verify TSDIS is operational in the appropriate mode and configuration -- i.e., capable of supporting electronic distribution.	Successful "ping" of system.		
V1-ICT-07.005	1.002	GSFC DAAC	Start the network monitoring tool to monitor communication across the line.			
V1-ICT-07.005	1.003	GSFC DAAC	As a client, login to a DCE Cell, dce_login<principal name>; password.			
V1-ICT-07.005	1.004	GSFC DAAC	From the monitoring tool, attempt to read information that the server is reading from the client such as: a. client's id; b. client's permissions; c. client's group; d. client's memory capability.			
V1-ICT-07.005	2.001	TSDIS	Send "Start Session" message.			
V1-ICT-07.005	2.002	GSFC DAAC	Receive "Start Session" message and respond with "Start Session Acknowledgment" message.	View monitoring tool to observe receipt of Start Session message and the sending of the Start Session Acknowledgment message.		TRMM4110#A,

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.005	2.003	TSDIS	Send POCR message.			
V1-ICT-07.005	2.004	GSFC DAAC	Receives POCR message and responds with a POC message.	View monitoring tool to observe receipt of POCR and the sending of the POC messages.		TRMM4130# A,
V1-ICT-07.005	2.005	TSDIS	Receives the POC message.			
V1-ICT-07.005	2.006	GSFC DAAC	GSFC resends POC message except with a Validation failure error message.	A error message with a value of 1 is sent to TSDIS	Error Checking	
V1-ICT-07.005	2.007	TSDIS	Receives the error message indicated as a 1 which indicates a Validation Error.	TSDIS validates the receipt of the error with a value of 1	Error Checking	
V1-ICT-07.005	2.008	GSFC DAAC	GSFC resends a POC that is corrected without the error.		Error Checking	
V1-ICT-07.005	2.009	TSDIS	Receives the correct POC message.		Error Checking	
V1-ICT-07.005	2.010	GSFC DAAC	GSFC resends POC message except with a ECS_ID not found error message.	A error message with a value of 2 is sent to TSDIS	Error Checking	
V1-ICT-07.005	2.011	TSDIS	Receives the error message indicated as a 2 which indicates a ECS_ID not found in queue Error.	TSDIS validates the receipt of the error with a value of 2	Error Checking	
V1-ICT-07.005	2.012	GSFC DAAC	GSFC resends a POS that is corrected without the error.		Error Checking	
V1-ICT-07.005	2.013	TSDIS	Receives the correct POS message.		Error Checking	
V1-ICT-07.005	3.001	TSDIS	Sends "Close Session" message.			
V1-ICT-07.005	3.002	GSFC DAAC	Receives "Close Session" message.			
V1-ICT-07.005	3.003	GSFC DAAC	Perform "kdestroy"	End DCE/Kerberos session		

Test Case Identification ICT07.006

Test Case Description
TSDIS Requests Metadata Update

The sequence of Gateway and handshake control messages and file transfers needed for TSUs to obtain data from GSFC DAAC via TSDIS. TSDIS establishes a TCP/IP connection and sends the Start Session message. GSFC DAAC returns the Start Session Acknowledgment message. TSDIS transmits a MUR and GSFC DAAC responds with a MUA and TSDIS closes the session. See Exhibit ICT7-9 for message and data flow diagrams.

Test Case Conditions

Users are able to change the configuration files. Software and hardware as detailed in the forward portion of this plan is available and operational.

Test Case Inputs
Users must change the configuration file to reflect the incoming and delivery gateway executables. A configurable port is set for TSDIS gateway.   MUR and MUA message formats.

Test Case Results
The incoming gatewayk validates with a POSR , if no errors found, and the delivery gateway sends a POS, for successfully completed data transfers files. Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD.Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD.   .TSDIS correctly receiving the Metadata Update Requests.

Test Case Criteria
This test will be successful if the external client can connect to a configurable port and verify MUR ->MUA, incoming and delivery gateways. Messages and files are transmitted between the GSFC DAAC and TSDIS and that the messages and file formats agree with the ICD. Verify at the work stations that the messages are received and that acknowledgments are sent and received correctly.

Test Case Assumptions
It is assumed that qualified operators for both the TSDIS and GSFC DAAC are provided.   It is not expected that IV&V test witness personnel will have password authorization for operating the work stations.

Test Case Requirements
TRMM4110#A, TRMM4130#A

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
V1-ICT-07.006	1.001	TSDIS & GSFC DAAC	Verify TSDIS is operational in the appropriate mode and configuration -- i.e., capable of supporting electronic distribution.	Successful "ping" of system		
V1-ICT-07.006	1.002	GSFC DAAC	Start the network monitoring tool to monitor communication across the line.			
V1-ICT-07.006	1.003	GSFC DAAC	As a client, login to a DCE Cell, dce_login<principal name>; password.			
V1-ICT-07.006	1.004	GSFC DAAC	From the monitoring tool, attempt to read information that the server is reading from the client such as: a. client's id; b. client's permissions; c. client's group; d. client's memory capability.			
V1-ICT-07.006	2.001	TSDIS	Send "Start Session" message			
V1-ICT-07.006	2.002	GSFC	Receive "Start Session" message	View monitoring		TRMM4130#A,

Test Case ID	Step Type	Station	Operator Action	Expected Result	Comments	Allocated Requirements
		DAAC	and responds with "Start Session Acknowledgment" message.	tool to observe receipt of Start Session message and the sending of the Start Session Acknowledgment message.		TRMM4110#A,
V1-ICT-07.006	2.003	TSDIS	Receives Start Session Acknowledgment and sends MUR message.			
V1-ICT-07.006	2.004	GSFC DAAC	Receives MUR message and responds with MUA message.	View monitoring tool to observe receipt of MUR and the sending of the MUA message.		TRMM4130#A
V1-ICT-07.006	2.005	TSDIS	Receives MUA message			
V1-ICT-07.006	2.006	GSFC DAAC	GSFC resends MUA message except with a Validation failure error message.	A error message with a value of 1 is sent to TSDIS	Error Checking	
V1-ICT-07.006	2.007	TSDIS	Receives the error message indicated as a 1 which indicates a Validation Error.	TSDIS validates the receipt of the error with a value of 1	Error Checking	
V1-ICT-07.006	2.008	GSFC DAAC	GSFC resends a MUA that is corrected without the error.		Error Checking	
V1-ICT-07.006	2.009	TSDIS	Receives the correct MUA message.		Error Checking	
V1-ICT-07.006	3.001	TSDIS	Sends "Close Session" message.			
V1-ICT-07.006	3.002	GSFC DAAC	Receives "Close Session" message.			
V1-ICT-07.006	3.003	GSFC DAAC	Perform "kdestroy"	End DCE/Kerberos session		